

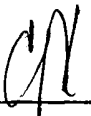
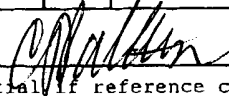
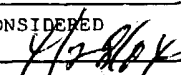


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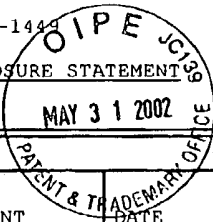


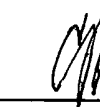

Page 1 of 6

FORM PTO-1449 INFORMATION DISCLOSURE STATEMENT			ATTY. DOCKET NO. 1708.0280002		APPLICATION NO. 10/005,647	
			APPLICANT Jalkanen et al.		GROUP 1645/1652	
			FILING DATE December 7, 2001			
PATENT DOCUMENTS						
EXAMINER INITIAL		DOCUMENT NUMBER		NAME	CLASS	SUB- CLASS
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FOREIGN PATENT DOCUMENTS						
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	AL1	WO 96/14425	05/17/1996	WIPO		Yes No
	AM1	WO 98/48006	10/29/1998	WIPO		Yes No
	AN					Yes No
	AO					Yes No
	AP					Yes No
OTHER (Including Author, Title, Date, Pertinent Pages, etc.)						
	AR	1	Campbell, P. et al., "Biosynthesis of Heparin/Heparan Sulfate: Purification of the D-Glucuronyl C-5 Epimerase from Bovine Liver," J. Biol. Chem. 269:26953-26958, The American Society of Biochemistry and Molecular Biology Inc. (1994).			
	AS	1	Casu, B. et al., "Conformational flexibility: a new concept for explaining binding and biological properties of iduronic acid-containing glycosaminoglycans," Trends Biochem. Sci. 13:221-225, Elsevier Science Ltd. (1988).			
	AT	1	Kelley, L.A. et al., "Enhanced Genome Annotation Using Structural Profiles in the Program 3D-PSSM," J. Mol. Biol. 299:499-520, Academic Press (June 2000).			
EXAMINER 					DATE CONSIDERED 	
EXAMINER: Initial reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.						

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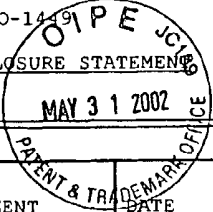
Page 2 of 6

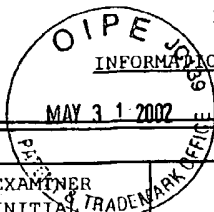



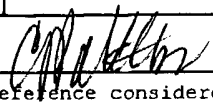
FORM PTO-1449 INFORMATION DISCLOSURE STATEMENT				ATTY. DOCKET NO. 1708.0280002		APPLICATION NO. 10/005,647	
				APPLICANT Jalkanen et al.		FILING DATE December 7, 2001	
				GROUP 1645 1652			
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION
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	AM						Yes No
	AN						Yes No
	AO						Yes No
	AP						Yes No
OTHER (Including Author, Title, Date, Pertinent Pages, etc.)							
	AR	2	Kjellén, L. and Lindahl, U., "Proteoglycans: Structures and Interactions," Annu. Rev. Biochem. 60:443-475, Annual Reviews Inc. (1991).				
	AS	2	Li, J.-p. et al., "Biosynthesis of Heparin/Heparan Sulfate. cDNA Cloning and Expression of D-Glucuronyl C5-Epimerase from Bovine Lung," J. Biol. Chem. 272:28158-28163, The American Society for Biochemistry and Molecular Biology, Inc. (1997).				
	AT	2	Malmström, A. et al., "Biosynthesis of Heparin. Partial Purification of the Uronosyl C-5 Epimerase," J. Biol. Chem. 255:3878-3883, American Society of Biochemistry and Molecular Biology Inc. (1980).				
EXAMINER 					DATE CONSIDERED 8/28/04		
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.							

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FORM PTO-1449 INFORMATION DISCLOSURE STATEMENT				ATTY. DOCKET NO. 1708.0280002		APPLICATION NO. 10/005,647	
				APPLICANT Jalkanen et al.			
				FILING DATE December 7, 2001		GROUP 1645 <i>1652</i>	
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
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FOREIGN PATENT DOCUMENTS							
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	AM						Yes No
	AN						Yes No
	AO						Yes No
	AP						Yes No
OTHER (Including Author, Title, Date, Pertinent Pages, etc.)							
<i>CP</i>	AR	3	Ron, D. et al., "Expression of Biologically Active Recombinant Keratinocyte Growth Factor. Structure/Function Analysis of Amino-Terminal Truncation Mutants," J. Biol. Chem. 268:2984-2988, American Society of Biochemistry Molecular Biology Inc. (1993).				
<i>CP</i>	AS	3	Salmivirta, M. et al., "Heparan sulfate: a piece of information," FASEB J. 10:1270-1279, Federation of American Societies for Experimental Biology (1996).				
<i>CP</i>	AT	3	Wilson, R. et al., "2.2 Mb of contiguous nucleotide sequence from chromosome III of C. elegans," Nature 368:32-38, Macmillan Magazines Limited (1994).				
EXAMINER <i>CP Jalkanen</i>					DATE CONSIDERED <i>Apr 10 2002</i>		
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.							

FORM PTO-1449 INFORMATION DISCLOSURE STATEMENT MAY 31 2002 				ATTY. DOCKET NO. 1708.0280002		APPLICATION NO. 10/005,647	
				APPLICANT Jalkanen et al.			
				GROUP 1645-1652			
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE	
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	AM					Yes No	
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OTHER (Including Author, Title, Date, Pertinent Pages, etc.)							
	AR	4	Voet, D. and Voet, J.G., "Biochemistry," 2 nd Edition, John Wiley and Sons, Inc., New York, NY, p.965-967 (1995).				
	AS	4	Xue, F. and Cooley, L., "kelch Encodes a Component of Intercellular Bridges in Drosophila Egg Chambers," Cell 72:681-693, Cell Press (1993).				
	AT	4	NCBI Entrez, GenBank Report, Accession No. L08483, from Xue, F. et al. (1993).				
EXAMINER 				DATE CONSIDERED 7/29/02			
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.							

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				APPLICANT Jalkanen et al.			
				FILING DATE December 7, 2001			
				GROUP 1645 1652			

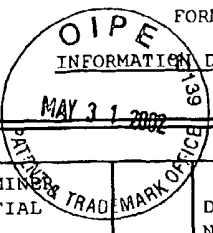



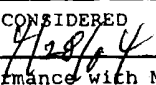
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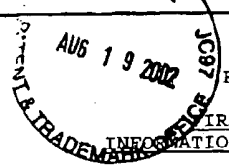
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	AN						Yes No
	AO						Yes No
	AP						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)			
<i>CP</i>	AR	5	NCBI Entrez, GenBank Report, Accession No. P46555, from Sulston, J. (1994).
<i>CP</i>	AS	5	NCBI Entrez, GenBank Report, Accession No. AF043700, from Wilson, R. et al. (1998).
<i>CP</i>	AT	5	NCBI Entrez, GenBank Report, Accession No. AAF36018, from The C. elegans Sequencing Consortium et al. (1998).

EXAMINER <div style="text-align: center; font-size: 1.2em; margin-top: 10px;"> <i>CP Patton</i> </div>	DATE CONSIDERED <div style="text-align: center; font-size: 1.2em; margin-top: 10px;"> <i>7/28/04</i> </div>
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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

 <p>FORM PTO-1449 INFORMATION DISCLOSURE STATEMENT</p>		ATTY. DOCKET NO. 1708.0280002		APPLICATION NO. 10/005,647			
		APPLICANT Jalkanen et al.					
		FILING DATE December 7, 2001		GROUP 1645/652			
U.S. PATENT DOCUMENTS							
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FOREIGN PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION
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	AM						Yes No
	AN						Yes No
	AO						Yes No
	AP						Yes No
OTHER (Including Author, Title, Date, Pertinent Pages, etc.)							
	AR	6	NCBI Entrez, GenBank Report, Accession No. AAF57373, from Adams, M.D. et al. (March 2000).				
	AS	6	Féthière, J. et al., "Crystal Structure of Chondroitin AC Lyase, a Representative of a family of Glycosaminoglycan Degrading Enzymes," J. Mol. Biol. 288:635-647, Academic Press (May 1999).				
	AT						
EXAMINER 					DATE CONSIDERED 		
<p>EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.</p>							

 FORM PTO-1449 FIRST SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT	ATTY. DOCKET NO. 1708.0280002/MAC/MBT	APPLICATION NO. 10/005,647
	RECEIVED AUG 21 2002	
	FILING DATE December 7, 2001	GROUP 1645 TECH CENTER 1600/2900

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
	AA1	5,939,289	8/17/1999	Ertesvåg et al.			10/8/1993
	AB1	6,372,477 B1	4/16/2002	Jørsboe et al.			5/27/1998
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FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION
<i>CP</i>	ALX1	WO 01/38507	5/31/2001	Japan			Yes No
	AM1						Yes No
	AN1						Yes No
	AO1						Yes No
	AP1						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

<i>CP</i>	AR	27	Crawford, B.E. et al., "Cloning, Golgi Localization, and Enzyme Activity of the Full-length Heparin/Heparan Sulfate-Glucuronic Acid C5-epimerase", J. Biol. Chem. 276:21538-21543, The American Society for Biochemistry and Molecular Biology, Inc. (June 2001).
<i>CP</i>	AS	27	Li, J.P. et al., "Characterization of the D-Glucuronyl C5-epimerase Involved in the Biosynthesis of Heparin and Heparan Sulfate", J. Biol. Chem. 276:20069-20077, The American Society for Biochemistry and Molecular Biology, Inc. (June 2001).
<i>CP</i>	AT	21	PCT Partial International Search Report for PCT/FI01/01068, filed December 7, 2001, Biotie Therapies Corp. (Search Report mailed August 1, 2002).

EXAMINER

DATE CONSIDERED

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FORM PTO-1449 <u>SECOND SUPPLEMENTAL</u> <u>INFORMATION DISCLOSURE STATEMENT</u>	ATTY. DOCKET NO. 1708.0280002/MAC/MBT	APPLICATION NO. 10/005,647
	APPLICANT Jalkanen, et al.	
	FILING DATE December 7, 2001	GROUP 1652

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
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FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION
	AL						Yes No
	AM						Yes No
	AN						Yes No
	AO						Yes No
	AP						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

<i>CP</i>	AR	28	Hagner-McWhirter, A. et al., "Biosynthesis of heparin/heparin sulfate: kinetic studies of the glucuronyl C5-epimerase with N-sulfated derivatives of the Eshcherichia coli K5 capsular polysaccharide as substrates," Glycobiology 10:159-171, Oxford University Press (February 2000)
<i>CP</i>	AS	28	Hagner-McWhirter, A. et al., "Biosynthesis of heparin/heparan sulphate: mechanism of epimerization of glucuronyl C-5," Biochem J. 347:69-75, London Portland Press On Behalf Of The Biochemical Society (April 2000)
<i>CP</i>	AT	28	Nagase, T. et al., "Prediction of the Coding Sequences of Unidentified Human Genes. XII. The Complete Sequences of 100 New cDNA Clones from Brain Which Code for Large Proteins in vitro," DNA Res. 5:355-364, Tokyo Kazusa DNA Research Institute and Universal Academy Press (1998)

EXAMINER <i>CP/Mackin</i>	DATE CONSIDERED <i>4/28/04</i>
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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.



FORM PTO-1449

SECOND SUPPLEMENTAL
INFORMATION DISCLOSURE STATEMENTATTY. DOCKET NO.
1708.0280002/MAC/MBTAPPLICATION NO.
10/005,647APPLICANT
Jalkanen, et al.FILING DATE
December 7, 2001GROUP
1652

U.S. PATENT DOCUMENTS

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FOREIGN PATENT DOCUMENTS

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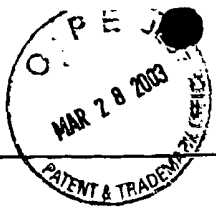
OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AR	29	D-glucuronyl C5-epimerase (EC 5.1.3.-) amino acid sequence (mouse), Accession No. Q9EPS3, Database EBI [Online] (March 2001)
	AS	29	D-glucuronyl C5-epimerase (EC 5.1.3.-) amino acid sequence (bovine), Accession No. O18756, Database EBI [Online] (January 1998)
	AT	29	Database Biosis Biosciences Information Service, Database accession no. PREV200000122890, abstract for Hagner-McWhirter, A. et al., "Biosynthesis of heparin/heparan sulphate: Kinetic studies of the glucuronyl C5-epimerase with N-sulfated derivatives of the Escherichia coli K5 capsular polysaccharide as substrates," (February 2000)

EXAMINER

DATE CONSIDERED

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FORM PTO-1449 <u>SECOND SUPPLEMENTAL</u> <u>INFORMATION DISCLOSURE STATEMENT</u>	ATTY. DOCKET NO. 1708.0280002/MAC/MBT	APPLICATION NO. 10/005,647
	APPLICANT Jalkanen, et al.	
	FILING DATE December 7, 2001	GROUP 1652

U.S. PATENT DOCUMENTS

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FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION
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	AM						Yes No
	AN						Yes No
	AO						Yes No
	AP						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

CPH	AR	2/10	D-glucuronyl C5-epimerase amino acid sequence (EC 5.1.3.-), Accession No. O94923, Database EBI [Online] (May 1999)
CPH	AS	2/10	Dialog File 351, Accession No. 2001-381292/200140, Derwent WPI English language abstract for WO 01/38507 (May 31, 2001).
CPH	AT	2/10	International Search Report for International Application No. PCT/FI01/01068 mailed on December 9, 2002.

EXAMINER

DATE CONSIDERED

12/8/04

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.